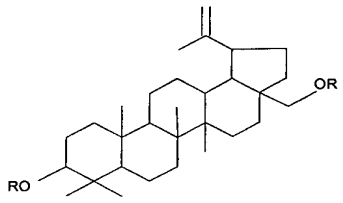
Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application.

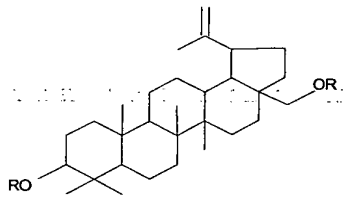
1. (currently amended) A diether having the formula:



wherein R is an alkyl group other than methyl.

2. (canceled).

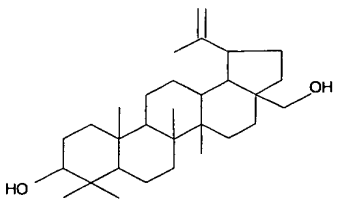
3. (previously presented) A method of synthesizing a diether having the formula:



wherein R is alkyl,

said method comprising:

alkylating a dialcohol having the formula:



with a nitrile having the formula:

$$R\text{-}C{\equiv}N$$

for a time and under conditions effective to form the diether, and

isolating the diether.

4. (original) A method according to claim 3, wherein R is methyl.

5. (original) A method according to claim 3, wherein the dialcohol and the nitrile, respectively, are present in a mole ratio of from about 1:20 to about 1:60.

6. (original) A method according to claim 3, wherein said alkylating is carried out at a temperature of from about 30°C to about 70°C.

7. (previously presented) A method of preparing betulonic aldehyde comprising:

oxidizing betulinol with chromium anhydride in acetone in the presence of sulfuric acid for a time and under conditions effective to produce betulonic aldehyde, and

isolating the betulonic aldehyde.

8. (original) A method according to claim 7, wherein the betulinol and acetone, respectively, are present in a weight ratio of from about 1:100 to about 1:110.

9. (original) A method according to claim 7, wherein the chromium anhydride and sulfuric acid, respectively, are present in a molar ratio of from 9:10 to about 10:9.

10. (previously presented) A method of preparing betulonic aldehyde comprising:

reacting betulinol with chromium anhydride in acetone in the presence of sulfuric acid for a time and under conditions effective to produce a reaction mixture that includes betulonic aldehyde;

cooling the reaction mixture;

adding water to the reaction mixture, whereby a sediment containing betulonic aldehyde forms; and

isolating the betulonic aldehyde.

11. (previously presented) A method of preparing betulonic aldehyde comprising:

reacting betulinol with chromium anhydride in acetone in the presence of sulfuric acid for a time and under conditions effective to produce a reaction mixture that includes betulonic aldehyde;

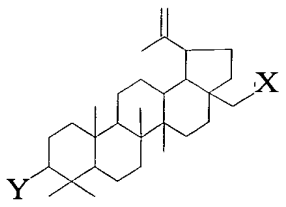
cooling the reaction mixture;

adding water to the reaction mixture, whereby a sediment containing betulonic aldehyde forms;

crystallizing the sediment; and

isolating the betulonic aldehyde.

12. (original) A compound having the formula:



wherein

X or Y is a -peptide-Q moiety and the other of X and Y is a hydroxy group, an alkoxy group, an alkanoyloxy group, or a -peptide-Q moiety;

Q is a hydroxy group, a $-NHNH_2$ moiety, an $-NHNH-C(O)CH_2Hal$ moiety, an -antibody-OH moiety, or an -NHNH-C(O)-antibody-OH moiety; and

Hal is a halogen.

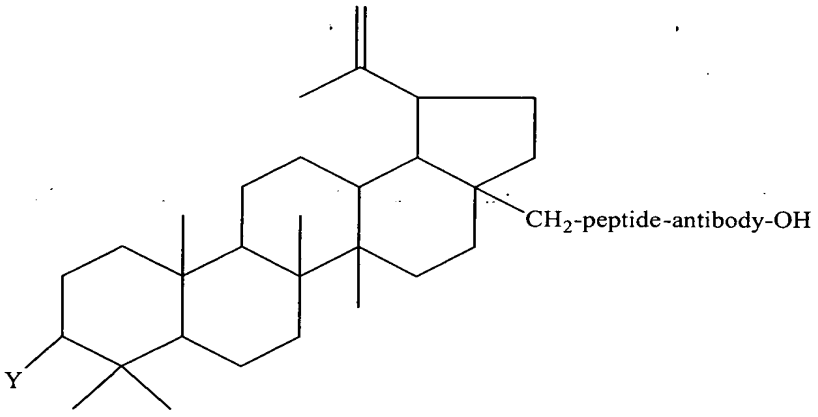
13. (previously presented) A compound according to claim 12, wherein "-peptide-" is a pentapeptide.

14. (previously presented) A compound according to claim 13, wherein the pentapeptide is -Gly-Ala-Leu-Gly-Leu- (SEQ ID NO: 2).

15. (previously presented) A compound according to claim 12, wherein "-peptide-" is a tetrapeptide.

16. (previously presented) A compound according to claim 15, wherein the tetrapeptide is -Leu-Ala-Leu-Ala- (SEQ ID NO: 1).

17. (previously presented) A method of producing a betulinol-antibody conjugate having the formula:

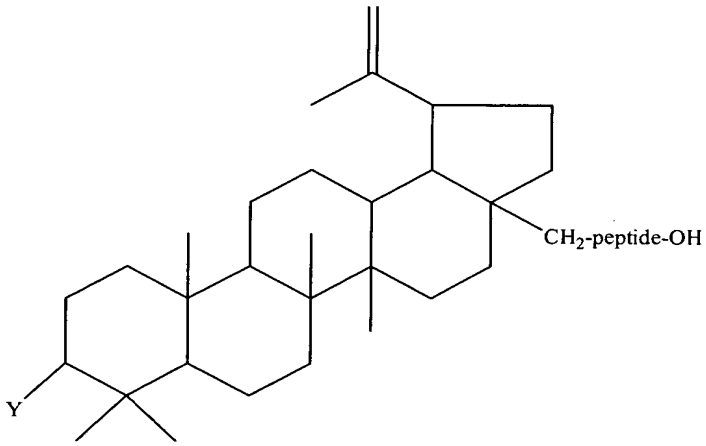


wherein

Y is a hydroxy group, an alkoxy group, or an alkanoyloxy group,

said method comprising:

reacting a betulinol peptide having the formula:



with an antibody having the formula H-antibody-OH for a time and under conditions effective to produce the betulinol-antibody conjugate, and

isolating the betulinol-antibody conjugate.

18. (original) A method according to claim 17, wherein -peptide- is a pentapeptide.

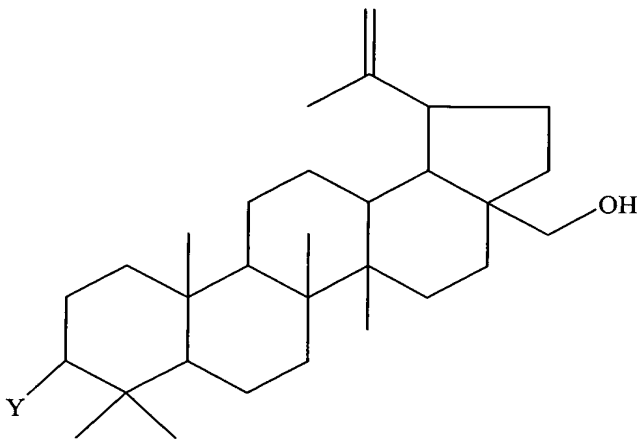
19. (previously presented) A method according to claim 18, wherein the pentapeptide is -Gly-Ala-Leu-Gly-Leu- (SEQ ID NO: 2).

20. (original) A method according to claim 17, wherein -peptide- is a tetrapeptide.

21. (previously presented) A method according to claim 20, wherein the tetrapeptide is -Leu-Ala-Leu-Ala- (SEQ ID NO: 1).

22. (previously presented) A method according to claim 17, wherein said betulinol peptide is obtained by a process comprising:

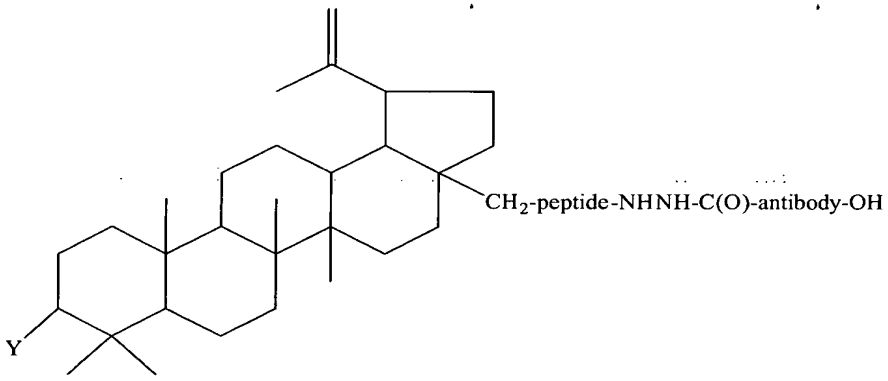
reacting a compound having the formula:



with a peptide having the formula H-peptide-OH for a time and under conditions effective to produce the betulinol peptide, and

isolating the betulinol peptide.

23. (previously presented) A method of producing a betulinol-antibody conjugate having the formula:

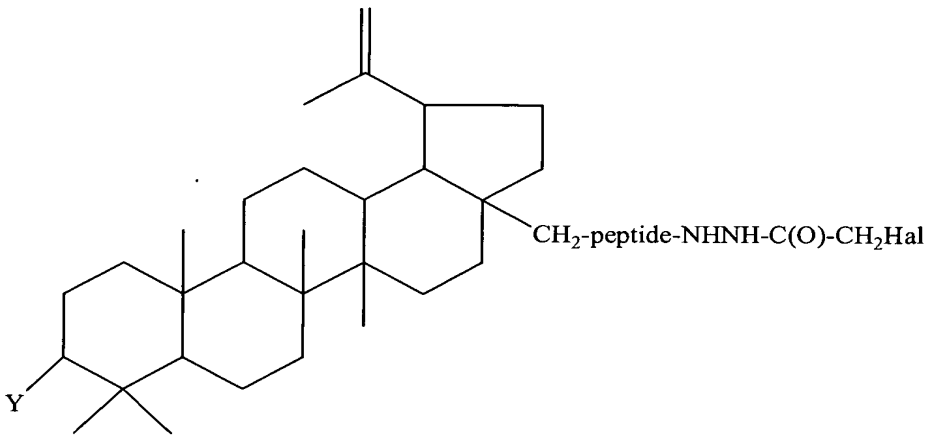


wherein

Y is a hydroxy group, an alkoxy group, or an alkanoyloxy group,

said method comprising:

reacting a haloacetylhydrazide having the formula:



wherein

Hal is a halogen

with an antibody having the formula H-antibody-OH for a time and under conditions effective to produce the betulinol-antibody conjugate, and

isolating the betulinol-antibody conjugate.

24. (original) A method according to claim 23, wherein Hal is I.

25. (previously presented) A method according to claims 23, wherein "-peptide-" is a pentapeptide.

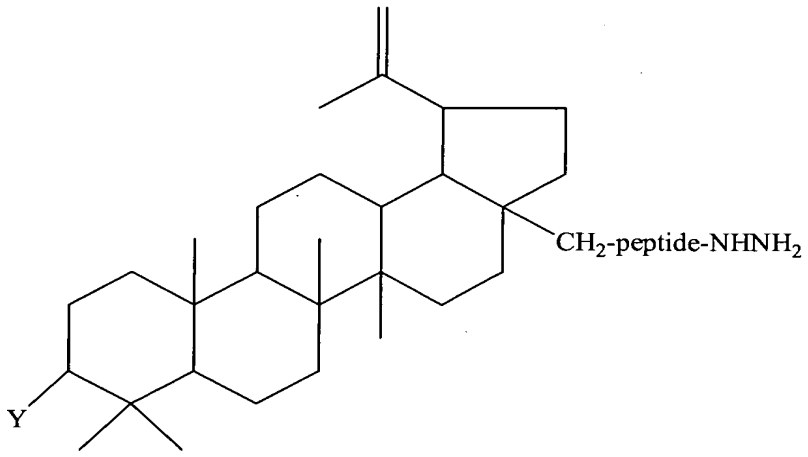
26. (previously presented) A method according to claim 25, wherein the pentapeptide is -Gly-Ala-Leu-Gly-Leu- (SEQ ID NO: 2).

27. (previously presented) A method according to claim 23, wherein "-peptide-" is a tetrapeptide.

28. (previously presented) A method according to claim 27, wherein the tetrapeptide is -Leu-Ala-Leu-Ala- (SEQ ID NO: 1).

29. (previously presented) A method according to claim 23, wherein said haloacetylhydrazide is obtained by a process comprising:

reacting a hydrazide having the formula:

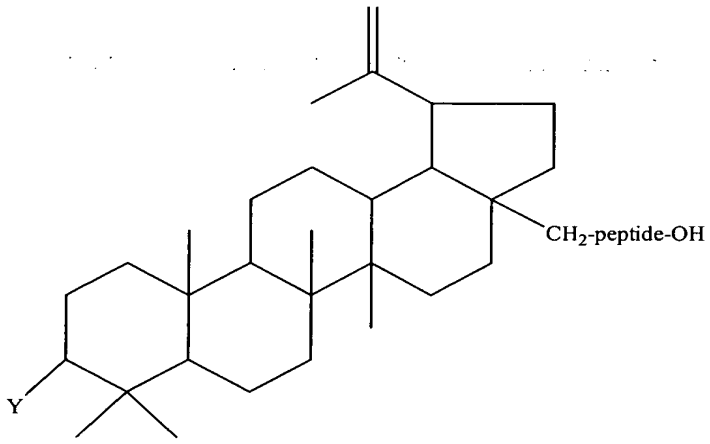


with a *para*-nitrophenyl α-haloacetate for a time and under conditions effective to produce the haloacetylhydrazide, and

isolating the haloacetylhydrazide.

30. (previously presented) A method according to claim 29, wherein said hydrazide is obtained by a process comprising:

reacting a betulinol peptide having the formula:

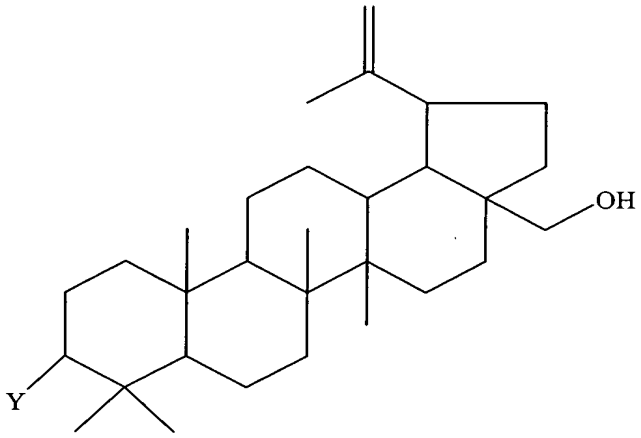


with hydrazine hydrate for a time and under conditions effective to produce the hydrazide, and

isolating the hydrazide.

31. (previously presented) A method according to claim 30, wherein said betulinol peptide is obtained by a process comprising:

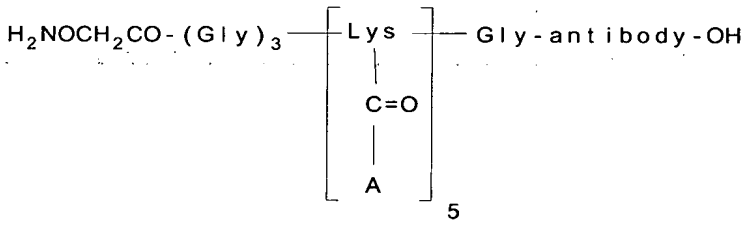
reacting a compound having the formula:



with a peptide having the formula H-peptide-OH for a time and under conditions effective to produce the betulinol peptide, and

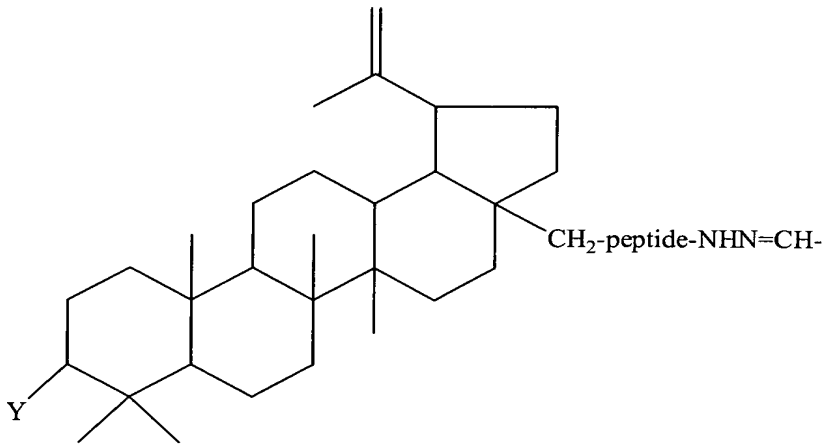
isolating the betulinol peptide.

32. (previously presented) A betulinol-antibody conjugate having the formula:



wherein

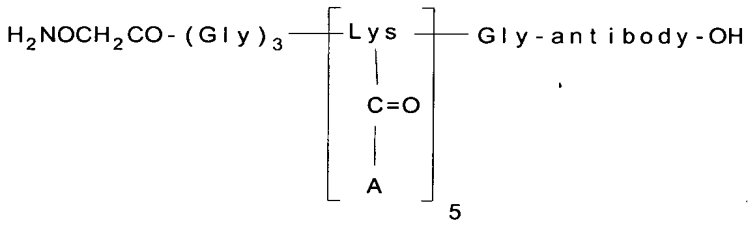
each "A" moiety is independently selected from the group consisting of a -CHO group and a moiety having the formula:



provided that at least one of A is not -CHO; and

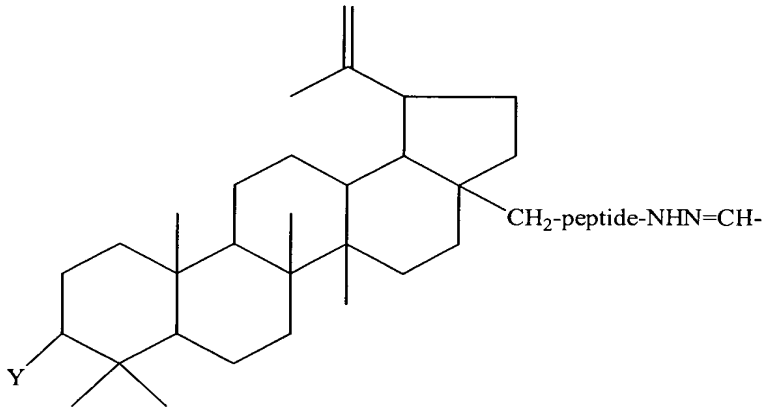
Y is a hydroxy group, an alkoxy group, or an alkanoyloxy group.

33. (previously presented) A method of producing a betulinol-antibody conjugate having the formula:



wherein

each "A" moiety is independently selected from the group consisting of a -CHO group and a moiety having the formula:

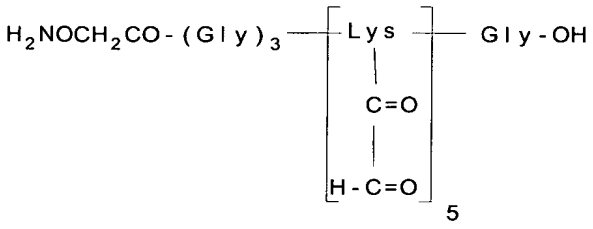


provided that at least one of A is not -CHO; and

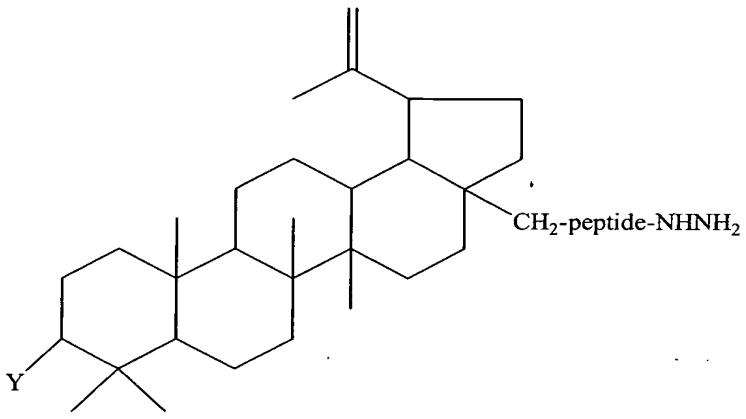
Y is a hydroxy group, an alkoxy group, or an alkanoyloxy group,

said method comprising:

reacting a carrier molecule having the formula:



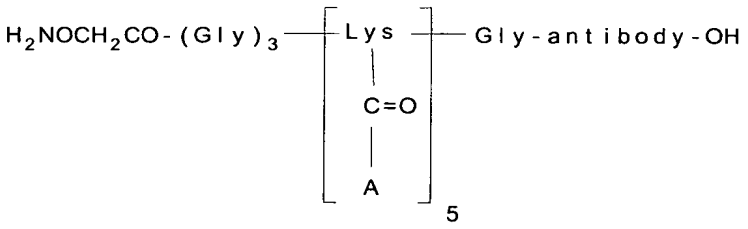
a hydrazide having the formula:



and an antibody having the formula H-antibody-OH for a time and under conditions effective to produce the betulinol-antibody conjugate, and

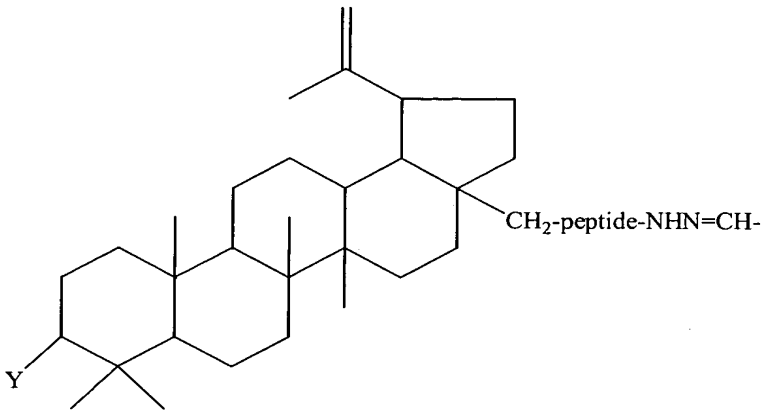
isolating the betulinol-antibody conjugate.

34. (previously presented) A method of producing a betulinol-antibody conjugate having the formula:



wherein

each "A" moiety is independently selected from the group consisting of a -CHO group and a moiety having the formula:

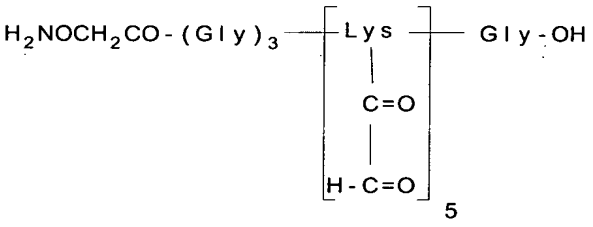


provided that at least one of A is not -CHO; and

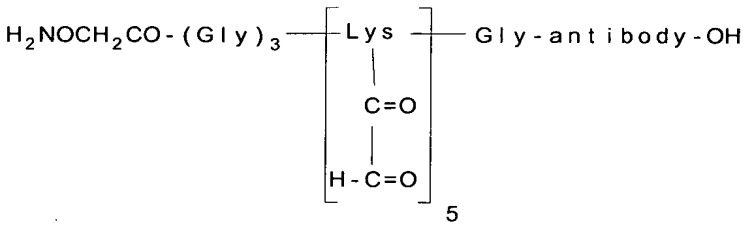
Y is a hydroxy group, an alkoxy group, or an alkanoyloxy group,

said method comprising:

reacting a carrier molecule having the formula:

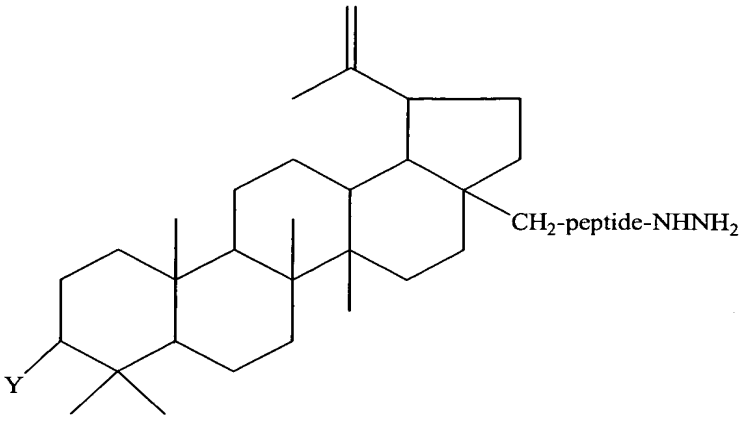


with an antibody having the formula H-antibody-OH for a time and under conditions effective to produce an antibody-bound carrier molecule having the formula:



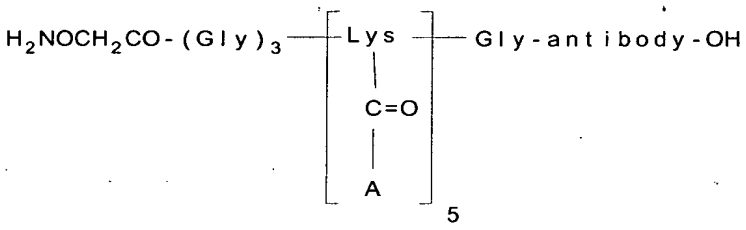
and

reacting the antibody-bound carrier molecule with a hydrazide having the formula:



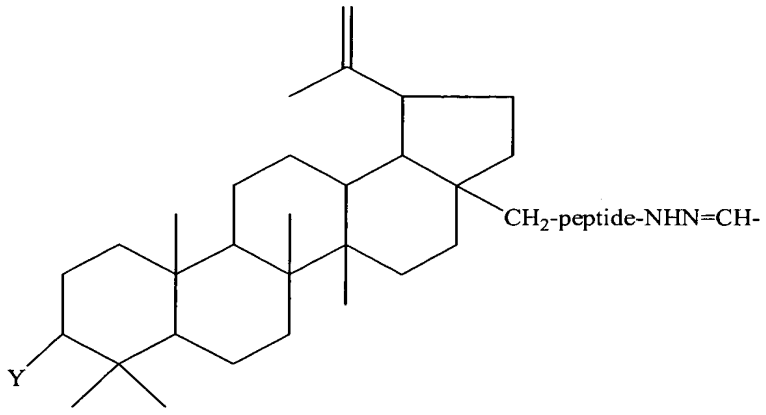
for a time and under conditions effective to produce the betulinol-antibody conjugate, and isolating the betulinol-antibody conjugate.

35. (previously presented) A method of producing a betulinol-antibody conjugate having the formula:



wherein

each "A" moiety is independently selected from the group consisting of a -CHO group and a moiety having the formula:

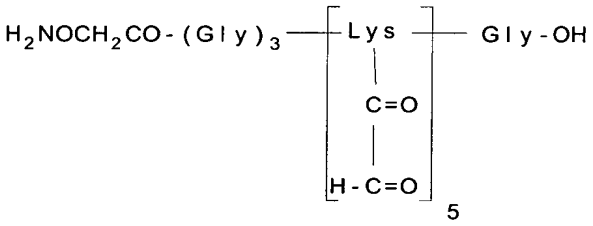


provided that at least one of A is not -CHO; and

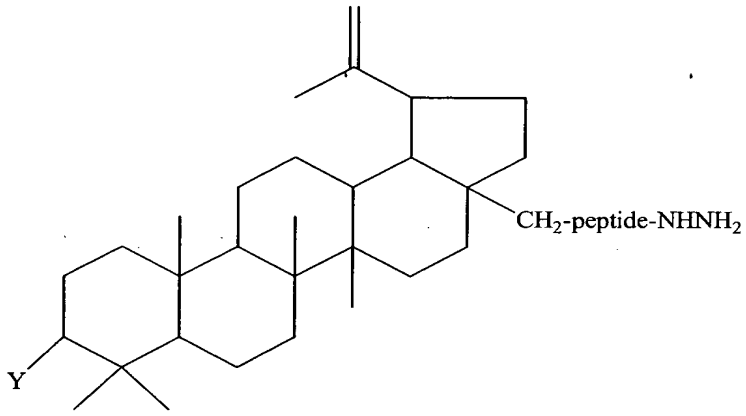
Y is a hydroxy group, an alkoxy group, or an alkanoyloxy group,

said method comprising:

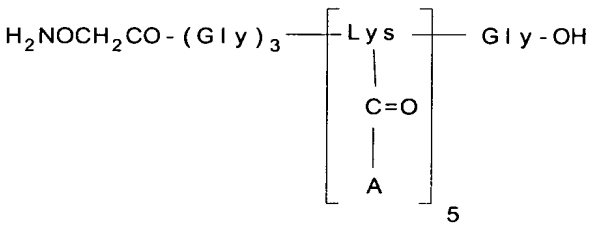
reacting a carrier molecule having the formula:



with a hydrazide having the formula:

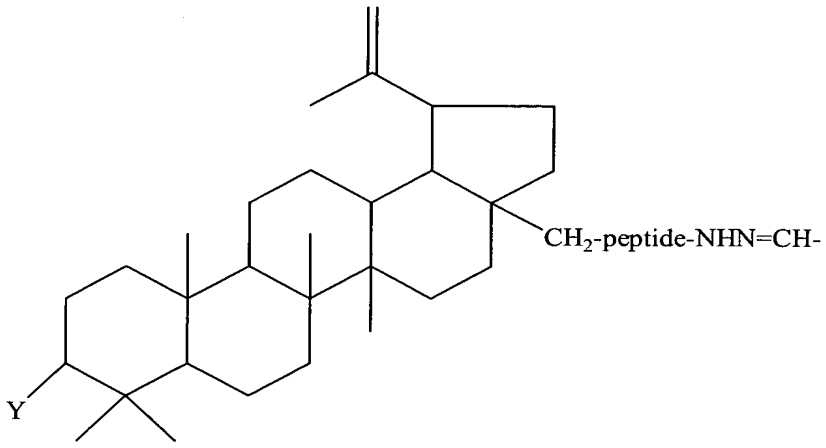


for a time and under conditions effective to produce a betulinol-bound carrier molecule having the formula:



wherein

at least one A is a moiety having the formula:



and

reacting the betulinol-bound carrier molecule with an antibody having the formula H-antibody-OH for a time and under conditions effective to produce the betulinol-antibody conjugate, and

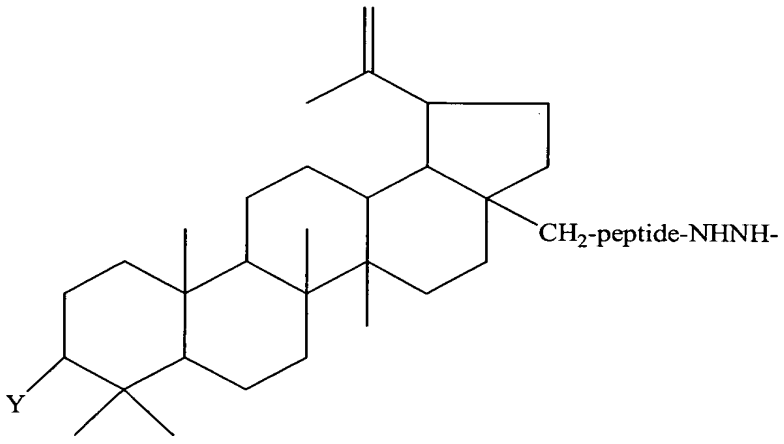
isolating the betulinol-antibody conjugate.

36. (previously presented) A betulinol-antibody conjugate having the formula:

$$HO\text{-antibody-spacer-}(A)_n$$

wherein

A is a moiety having the formula:

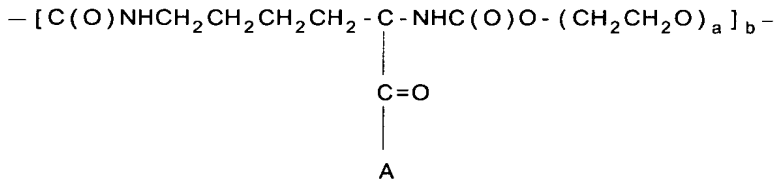


Y is a hydroxy group, an alkoxy group, or an alkanoyloxy group;

"spacer" is multivalent moiety bonded to the antibody and $(A)_n$; and

n is an integer from 1 to 100.

37. (original) A betulinol-antibody conjugate according to claim 36, wherein -spacer-$(A)_n$ has the formula:



wherein

a is an integer from 1 to 100 and

b is an integer equal to n.

38. (previously presented) A betulinol-antibody conjugate according to claim 36, wherein "spacer" is a multivalent moiety produced from a diamine derivative of polyethylene glycol having 2-(pyridyldithio)-propionyl and N-hydroxysuccinimide ester groups bonded thereto.

39. (previously presented) A betulinol-antibody conjugate according to claim 36, wherein "spacer" is a multivalent moiety produced from a branched form of polyethylene glycol propionic acid N-hydroxysuccinimide ester.

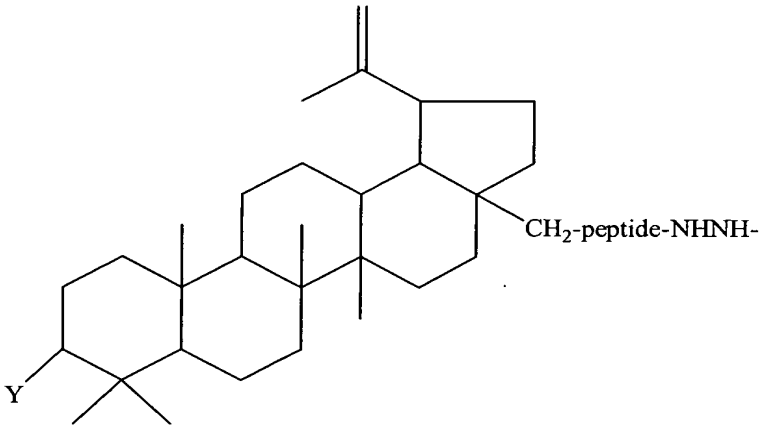
40. (original) A betulinol-antibody conjugate according to claim 39, wherein the branched form of polyethylene glycol propionic acid N-hydroxysuccinimide ester is a monomethoxypoly(ethylene glycol)-propionic acid N-hydroxysuccinimide ester.

41. (previously presented) A method of producing a betulinol-antibody conjugate having the formula:

HO-antibody-spacer-$(A)_n$

wherein

A is a moiety having the formula:



Y is a hydroxy group, an alkoxy group, or an alkanoyloxy group;

"spacer" is multivalent moiety bonded to the antibody and $(A)_n$; and

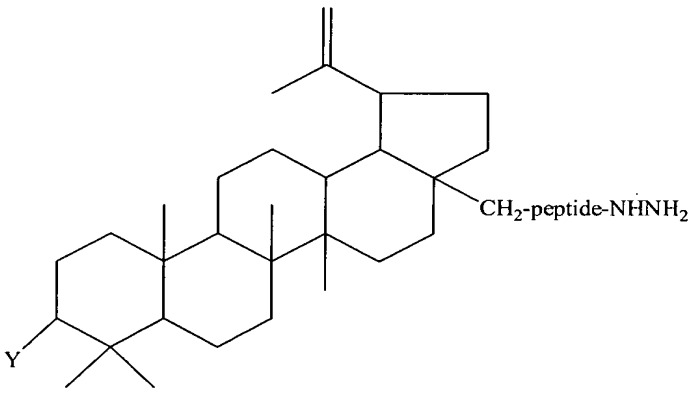
n is an integer from 1 to 100,

said method comprising:

providing a "spacer" having a first reactive terminus and one or more second reactive termini;

reacting an antibody with the first reactive terminus;

reacting a hydrazide having the formula:



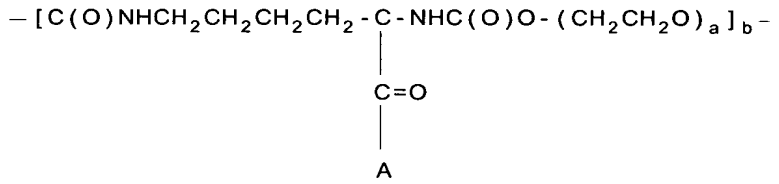
with one or more of the one or more second reactive termini for a time and under conditions effective to produce the betulinol-antibody conjugate; and

isolating the betulinol-antibody conjugate.

42. (original) A method according to claim 41, wherein the first reactive terminus is selected from the group consisting of a hydroxy group, an aldehyde group, and a carboxyl group.

43. (original) A method according to claim 41, wherein each of the one or more second reactive termini are independently selected from the group consisting of a hydroxy group, an aldehyde group, and a carboxyl group.

44. (original) A method according to claim 41, wherein -spacer-$(A)_n$ has the formula:



wherein

a is an integer from 1 to 100 and

b is an integer equal to n.

45. (previously presented) A method according to claim 41, wherein "spacer" is a multivalent moiety produced from a diamine derivative of polyethylene glycol having 2-(pyridyldithio)-propionyl and N-hydroxysuccinimide ester groups bonded thereto.

46. (previously presented) A method according to claim 41, wherein "spacer" is a multivalent moiety produced from a branched form of polyethylene glycol propionic acid N-hydroxysuccinimide ester.

47. (original) A method according to claim 46, wherein the branched form of polyethylene glycol propionic acid N-hydroxysuccinimide ester is a monomethoxypoly(ethylene glycol)-propionic acid N-hydroxysuccinimide ester.